

SCIENTOMETRIC ANALYSIS OF INDIAN CITATION INDEX (2004-2015): PROFILE OF THE DOMAIN OF CHEMISTRY JOURNALS

R. SENTHILKUMAR¹ & G. ULAGANATHAN²

¹Librarian (SG) & Head (Research), Department of Library and Information Science,
Kongunadu Arts & Science College (Autonomous), Coimbatore, Tamil Nadu, India

²LIS, Research Scholar (PT), Kongunadu Arts & Science College (Autonomous), Librarian, Dr. SNS
Rajalakshmi College of Arts & Science (Autonomous), Coimbatore, Tamil Nadu, India

ABSTRACT

Indian Citation Index database is a useful and powerful tool to search, track, and calculate collaboration in the science, social science, arts, as well as humanities subject. This paper is discussed the published research articles, citations and self-citations in the Chemistry journals which are available in Indian Citation Index. There are 27932 articles published from 5 Chemistry Journals, the Asian Journal of Chemistry occupies first position with 14002(50.13%) articles and The Research Journal of Pharmaceutical Biological & Chemical Sciences occupies second rank with 4810(17.22%) articles International Journal of Chem. Tech Research is in third 3438(12.31%) It is pointed out that the frequency of the journals is varying and that is one of the reasons for the strength of articles. Further, in the year 2014, 4665(16.70%) articles are published and it is highest when comparing to other years.

KEYWORDS: Chemistry, Indian Citation Index, Scientometric, Articles, Citations, Self Citations, JCI, RII

Received: Sep 12, 2016; **Accepted:** Sep 26, 2016; **Published:** Nov 01, 2016; **Paper Id.:** IJLSRDEC20162

INTRODUCTION

The true barometer of assessing the quality and quantity of a journal is the Citation Index. While discussing citation, one need to understand a citation is simply, when another refers other works in his/her article, we call the article referred is cited. In other words the citation is called as the previous work which is referred in the present work. The quality of a given work can rightly be adjudged through the number of citations that it gets. Therefore, a certain piece of article or research paper carrying more number of citations get more impact than the work carrying less citations. Therefore, we always refer to some indexing and abstracting databases like Scopus, Web of Science, or even Google Scholars to know the impact of a journal, a particular article or a particular author. Indian Citation Index which was initiated by Diva Enterprises is just an indexing and abstracting database. This study attempts to analyze authors in the field of Chemistry during 2004-2015. Further it is to find out list of journals which are more cited and self cited.

REVIEW OF LITERATURE

Nicholas and Ritchie (1978) [1] view that, "study of bibliometrics concept provides information, knowledge and how it is communicated". Moreover, bibliometric studies are normally employed to evaluate the academic research output, the quality of the journal, impact and influence of articles, authors, and assorted parameters. Though there has been substantial growth of literature on bibliometric studies during the last decade,

the authors focus on some of the pertinent literature that relate to the present study. Potter (1981) [2] defines bibliometric study as “the study and measurement of the research publication patterns of all types of written communication and their authorship nature”. In a most interesting study Mooghali (2011) [3] et al analyzed records of three premiere indexes namely, “Social Science Citation Index”, “SCI, and “AHCI”, and it projected in the field of “scientometrics” evolved between 1980 to 2009. The pattern of growth of literature in the field of Nanoscience during 1990 to 2009 was reported by Karpagam et al. (2011) [4] In the similar vein, Abramo (2011) [5] exercised bibliometric techniques on some national level research assessment. Lapon-Kandeishein and Prebor (2011) [6] bibliographical research on Hebrew printing also needs mention. In the similar light bibliometric studies by veterans like Krampen, Eye and Schui (2011) [7], Kumar Suchetan (2012)[8] and others also presented findings on different directions. Dhanavandan and Tamizhchelvan (2014)[9] studied citations and research productivity of south Tamil Nadu universities from 2009 to 2013 based on Indian Citation Index (ICI). In extension to Dhanavandan and Tamizhchelvan’s study, the present study covers in its scope a different time slot of publication ranging from 2004 to 2015. The main aim of the study is to analysis the citations and self citations of Chemistry Journals from Indian Citation Index [10] articles for the period of 2004 to 2015.

Objectives of the Study

Based on the sources framed the following objectives:

- To assess the strength of articles Chemistry journals.
- To analyses the year wise Citations.
- To find out the journals Self Citations.
- To assess the journals JCI.
- To find out the RII.

METHODOLOGY

The Citation analysis is one of the important and most widely used tools for calculating expertise in the field of citation study by way of measuring the impact factor, and number of citations, etc. It is a controlled one as well as calculating tools for subject wise or country wise. This study is aimed to discuss the analysis of the citation index in the field of Chemistry Journals.

Analysis and Interpretation

The authors have been selected data from relevant sources from Indian Citation Index and the following discussions made for the period of 2004 to 2015. Remaining year’s publications (Before 2004) will not be considered for this study. In this study denotes

AJC: Asian Journal of Chemistry

IJCS: International Journal of Chemical Sciences

IJCR: International Journal of Chem. Tech Research

JICS: Journal of the Indian Chemical Society

RJPB: Research Journal of Pharmaceutical Biological & Chemical Sciences

Distribution of Chemistry Journals in ICI from 2004-2015 Vs Articles:

Table 1: Distribution of Chemistry Journals in ICI from 2004-2015 Vs Articles

S. No	Year	AJC	IJCS	IJCR	JICS	RJPB	Total	%
1	2004	351	100	--	246	--	697	2.50
2	2005	461	116	--	259	--	836	2.99
3	2006	583	118	--	276	--	977	3.50
4	2007	867	268	--	247	--	1382	4.95
5	2008	953	270	--	231	--	1454	5.21
6	2009	1131	374	222	235	--	1962	7.03
7	2010	1177	390	334	207	296	2404	8.61
8	2011	1382	240	251	239	475	2587	9.26
9	2012	1445	266	268	231	544	2754	9.85
10	2013	2648	199	412	284	686	4229	15.14
11	2014	1966	179	949	288	1283	4665	16.70
12	2015	1038	138	1002	281	1526	3985	14.26
	Total	14002	2658	3438	3024	4810	27932	100
	%	50.13	9.52	12.31	10.82	17.22	100	

The data presented in the Table 1 indicates number of articles published in Chemistry journals in Indian Citation Index. As per the Indian Citation Index 5 journals are taken for this study for the period of 2004 to 2015. There are 27932 articles published from 5 Chemistry Journals. Among the 5, Asian Journal of Chemistry occupies first position with 14002(50.13%) articles and The Research Journal of Pharmaceutical Biological & Chemical Sciences occupies second rank with 4810(17.22%) articles International Journal of Chem. Tech Research is in third 3438(12.31%) It is pointed out that the frequency of the journals is varying and that is one of the reasons for the strength of articles. Further, in the year 2014, 4665(16.70%) articles are published and it is highest when comparing to other years.

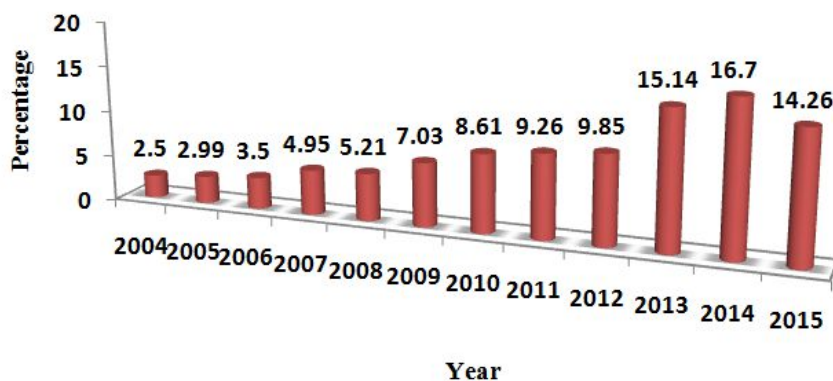


Figure 1: Distribution of Chemistry Journals Articles

Distribution of Chemistry Journals based on Citations from 2004-2015:

Table 2: Distribution of Chemistry Journals based on Citations from 2004-2015

S. No	Year	AJC	IJCS	IJCR	JICS	RJPB	Total	%
1	2004	484	122	--	501	--	1107	10.18
2	2005	444	82	--	298	--	824	7.58
3	2006	661	99	-	389	--	1149	10.57
4	2007	594	122	--	284	--	1000	9.20
5	2008	664	128	--	250	--	1042	9.59

Table 2: Contd.,								
6	2009	515	105	475	196	--	1291	11.88
7	2010	627	89	464	114	238	1532	14.09
8	2011	535	44	237	92	250	1158	10.65
9	2012	446	47	121	56	128	798	7.34
10	2013	414	12	98	32	88	644	5.92
11	2014	6	5	78	5	81	175	1.61
12	2015	2	5	131	0	13	151	1.39
	Total	5392	860	1604	2217	798	10871	100
	%	49.60	7.91	14.76	20.39	7.34		

The above Table 2 shows the citations of the Chemistry journals in Indian Citation Index for the years from 2004 to 2015. Among the 5 journals, 10871 citations were available. Out of 10871, Asian Journal of Chemistry occupy the first position with 5392(49.60%) citations followed by Journal of the Indian Chemical Society 2217(20.39%) is in the second position and International Journal of Chem. Tech Research is in the third position with 1604(14.76%) citations.

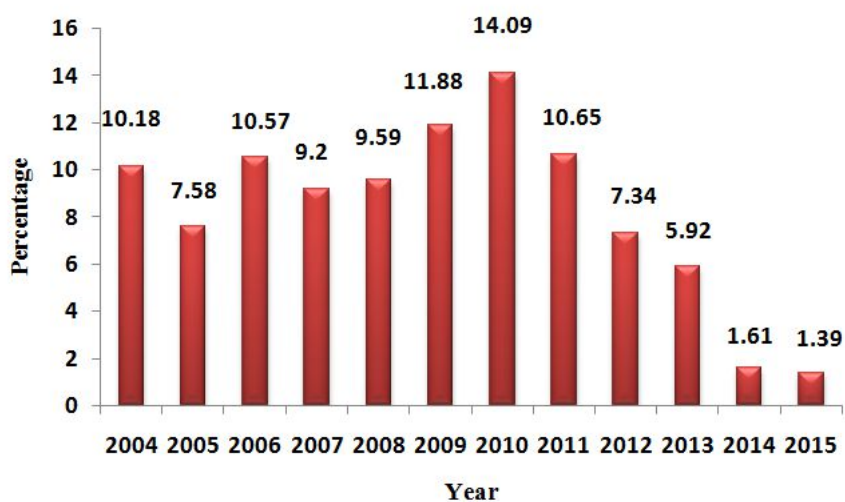


Figure 2: Distribution of Chemistry Journals Citations

Distribution of Chemistry Journals Based on Self Citations from 2004-2015

Table 3: Distribution of Chemistry Journals Based on Self Citations from 2004-2015

S. No	Year	AJC	IJCS	IJCR	JICS	RJPB	Total	%
1	2004	188	31	--	179	--	398	8.89
2	2005	190	17	--	127	--	334	7.46
3	2006	264	31	--	128	--	423	9.45
4	2007	226	55	--	152	--	433	9.67
5	2008	270	33	--	103	--	406	9.07
6	2009	260	26	43	94	--	423	9.45
7	2010	411	31	39	37	0	518	11.57
8	2011	389	6	39	55	27	516	11.53
9	2012	354	13	39	31	11	448	10.01
10	2013	308	1	43	20	40	412	9.21
11	2014	0	2	62	0	42	106	2.37
12	2015	0	1	53	0	5	59	1.32
	Total	2860	247	318	926	125	4476	100
	%	63.90	5.52	7.10	20.69	2.79	100	

The above Table represents the self citations of the Chemistry journals which are available in Indian Citation Index from the year 2004 to 2015. Among the 5 Chemistry journals 4476 Self citations were identified for the period of 2004 to 2015. Out of 4476, Asian Journal of Chemistry occupy the first position with 2860(63.90%) self citations followed by Journal of the Indian Chemical Society is in the second position 926(20.69%) self citations. Further International Journal of Chem. Tech Research is in third position 318(7.10%) self citations.

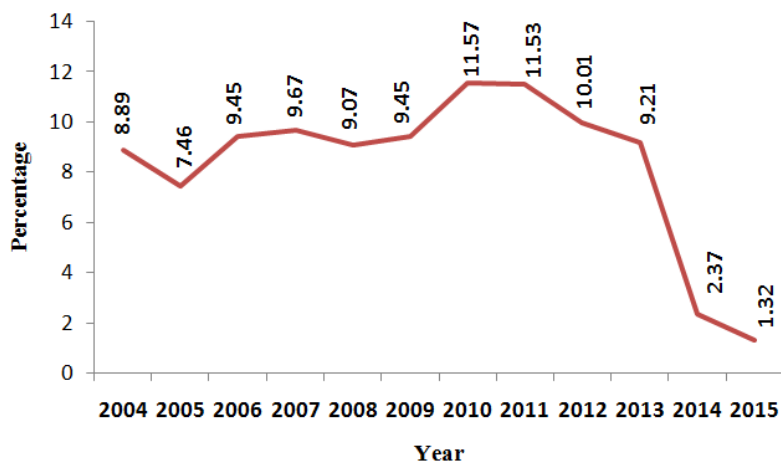


Figure 3: Distribution of Chemistry Journals Self Citations

Distribution of Chemistry Journals JCI

Table 4: Distribution of Chemistry Journals JCI

S. No	Year	AJC	IJCS	IJCR	JICS	RJPB	Total	%
1	2004	0.060	0	--	0.049	--	0.109	6.20
2	2005	0.030	0.009	--	0.035	--	0.074	4.21
3	2006	0.072	0	--	0.058	--	0.130	7.39
4	2007	0.035	0.030	--	0.065	--	0.130	7.39
5	2008	0.043	0	--	0.074	--	0.117	6.65
6	2009	0.028	0.011	0.072	0.077	--	0.188	10.69
7	2010	0.050	0.018	0.048	0.039	0.014	0.169	9.61
8	2011	0.041	0.042	0.096	0.029	0.021	0.229	13.03
9	2012	0.019	0.019	0.075	0.026	0.042	0.181	10.30
10	2013	0.060	0.025	0.034	0.025	0.034	0.178	10.13
11	2014	0.001	0.006	0.044	0.003	0.021	0.075	4.27
12	2015	0.002	0.036	0.131	0	0.009	0.178	10.13
	Total	0.441	0.196	0.500	0.480	0.141	1.758	100
	%	25.09	11.15	28.44	27.30	8.02	100	

The above Table indicates Journals Citations index of the Chemistry journals which are indexed in Indian Citation Index for the period of 2004 to 2015. Among the 5 journals the JCI % value of International Journal of Chem. Tech Research is higher than other journals.

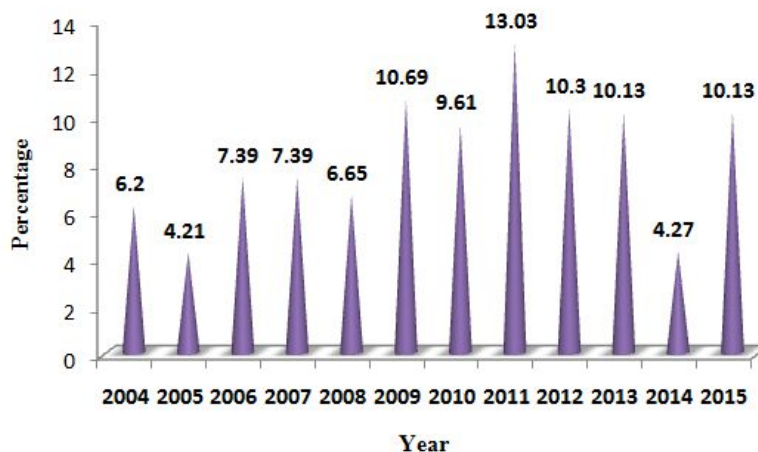


Figure 4: Distribution of Chemistry Journals JCI

Distribution of Chemistry Journals RII

Table 5: Distribution of Chemistry Journals RII

S. No	Year	AJC	IJCS	IJCR	JICS	RJPB	Total	%
1	2004	--	--	--	--	---	--	--
2	2005	--	--	--	--	--	--	--
3	2006	0.121	0.106	--	0.198	--	0.425	7.45
4	2007	0.176	0.077	--	0.236	--	0.489	8.57
5	2008	0.155	0.060	--	0.233	--	0.448	7.84
6	2009	0.143	0.102	--	0.257	--	0.502	8.80
7	2010	0.178	0.075	--	0.258	--	0.511	8.95
8	2011	0.137	0.071	0.523	0.294	--	1.025	17.96
9	2012	0.105	0.103	0.451	0.152	0.209	1.020	17.87
10	2013	0.204	0.081	0.281	0.102	0.121	0.789	13.82
11	2014	0.097	0.077	0.134	0.109	0.082	0.499	8.74
12	2015	--	--	--	--	--	--	--
Total		1.316	0.752	1.389	1.839	0.412	5.708	100
%		23.06	13.17	24.33	32.22	7.22	100	

The above Table shows the RII of the Chemistry journals which are indexed in Indian Citation Index. Among the 5 journals, Journal of the Indian Chemical Society has 1.839(32.22%) RII and it is the highest when comparing to other Chemistry journals in ICI.

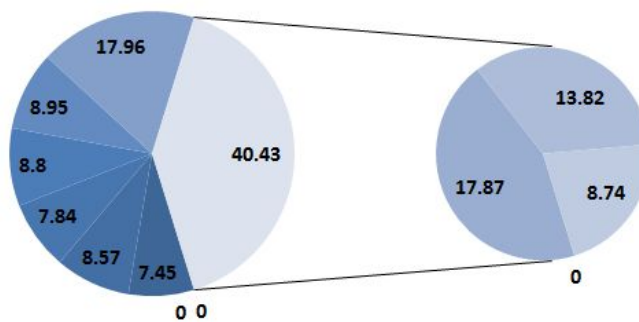


Figure 5: Distribution of Chemistry Journals RII

Journals Uncited %

Table 6: Journals Uncited %

S. No.	Journal Title	Uncited%
1	Asian Journal of Chemistry	81.50
2	International Journal of Chemical Sciences	83.37
3	International Journal of Chem. Tech Research	82.91
4	Journal of the Indian Chemical Society	68.78
5	Research Journal of Pharmaceutical Biological & Chemical Sciences	89.23

The above Table shows the uncited % of the Chemistry journals during the period of study. Research Journal of Pharmaceutical Biological & Chemical Sciences journal's uncited% is 89.23% followed by International Journal of Chemical Sciences with 83.37%.

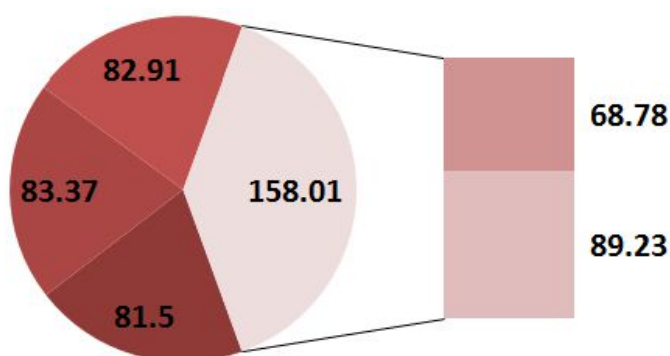


Figure 6: Journals Uncited %

CONCLUSIONS

The quality of research and quantity of research is made available through indexing journals with citations of various articles. There is lacking, for providing citations to other articles which authors cite. For reviewing the previous articles are very much important for supporting your article value added point for publishing. From this study, it shows that very few journals are citing and cited properly and indexed with ICI. It is a good practice to give self citation for their previous works and it is follow up of the previous one and improved one. During the period of study, there are 27932 articles published from 5 Chemistry Journals and Asian Journal of Chemistry occupies first position with 14002(50.13%) articles followed by The Research Journal of Pharmaceutical Biological & Chemical Sciences with 4810(17.22%) articles. Further, in the year 2014, 4665(16.70%) articles are published and it is highest when comparing to other years. The present study shows that out of 10871 citations, Asian Journal of Chemistry occupy the first position with 5392(49.60%) citations followed by Journal of the Indian Chemical Society 2217(20.39%). During the study period 4476 self citations are identified, Asian Journal of Chemistry occupy the first position with 2860(63.90%) self citations followed by Journal of the Indian Chemical Society is in the second position 926(20.69%) self citations. The present study reveals that the JCI % value of International Journal of Chem. Tech Research is higher than other journals. Journal of the Indian Chemical Society has 1.839(32.22%) RII and it is the highest when comparing to other Chemistry journals in ICI. Research Journal of Pharmaceutical Biological & Chemical Sciences journal's uncited% is 89.23% followed by International Journal of Chemical Sciences with 83.37%.

REFERENCES

1. Nicholas David and Ritchie Maureen. *Literature and Bibliometrics*. London: Clive Bingley, (1978).
2. Potter W.G., *Introduction to bibliometrics*, *Library Trends*, 30, 5, (1981) http://www.myjournal.my/filebank/published_article/17760/4.pdf.
3. Mooghali A. et al. *Scientometric Analysis of the Scientometric Literature*, *International Journal of Information Science and Management*, 9(1), 19-31 (2011).
4. Karpagam R. et al. *Mapping of Nano science and nanotechnology research in India: a scientometric analysis, 1990-2009*, *Scientometrics*, 89(2), 501-522 (2011).
5. Abramo Giovanni, *National research assessment exercises: a comparison of peer review and bibliometrics rankings*. *Scientometrics*, 89(3), 929-941 (2011).
6. Lapon-Kandelshein, Esther and Prebor, Gilla, *Bibliographical research in the study of Hebrew printing: a bibliometric analysis*, *Scientometrics*, 88(3), 899-913 (2011).
7. Krampen G., Eye A. and Schui G., *Forecasting trends of development of Energy and Fuel Science from a bibliometric perspective*, *Scientometrics*, 87(3), 687-694 (2011).
8. Kumar suchetan, Tiwari Charu and Deepu Mahija, *contribution to Indian sociology: A Bibliometric study*, *Language in India*, (2012)
9. S. Dhanavandan and M. Tamizhchelvan, *Citations and Self citations of Indian Authors in Library and Information Science: A Study Based Indian Citation Index (ICI)*. *International Journal of Academic Library and Information Science*, 2(9), (2014); 138-144.
10. <http://www.indiancitationindex.com> (Accessed on 28th August 2016).